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Parapertussis Q and A

What is parapertussis?

Parapertussis is a bacterial illness that is similar to pertussis (whooping cough) but is typically milder than pertussis. Parapertussis is caused by the bacterium *Bordetella parapertussis*, and pertussis is caused by *Bordetella pertussis*. Only *B. pertussis* produces the pertussis toxin (PT).

How do the symptoms of parapertussis differ from pertussis?

The signs and symptoms of *B. parapertussis* infection are similar to but milder and of shorter duration than those associated with *B. pertussis*. Approximately 40% of persons with *B. parapertussis* infection are asymptomatic. Among persons with symptomatic *B. parapertussis* infection frequent signs and symptoms include cough, paroxysmal cough, whoop, and post-tussive vomiting (vomiting after a coughing spell). Among patients with symptomatic parapertussis 61-96% have paroxysmal cough with an average duration of 14 days, whereas 80->90% of patients with pertussis may have paroxysmal cough with durations of 25->50 days. Among patients with symptomatic parapertussis 9-59% have whoops (high-pitched whooping sounds when breathing in after a coughing episode) compared to 40->70% with pertussis, 25-42% have post-tussive vomiting compared to 40->70% with pertussis, nearly 30% experience apnea (difficulty catching their breath after coughing) compared to 30->70% with pertussis, and 12% experience cyanosis compared to 15->50% with pertussis. Infants aged <6 months may have a more severe course of parapertussis than older persons.

Thus, while the frequencies of prolonged or paroxysmal cough and whooping are significantly less among persons with *B. parapertussis* infections compared to those with *B. pertussis* infections, the frequencies of prolonged cough, whooping, paroxysms, post-tussive vomiting, apnea and cyanosis are nonetheless quite striking among children with symptomatic *B. parapertussis* infections.

How prevalent is parapertussis?

B. parapertussis infections occur less frequently than *B. pertussis* infections. Based on Bordetella testing data from the Wisconsin State Laboratory of Hygiene (WSLH), among all diagnosed Bordetella infections during 2004-05 and 2008-11, about 11-13% were *B. parapertussis* infections and 87-89% were *B. pertussis* infections. These proportions can vary from year to year.

What age group can contract the illness?

Persons in all age groups can be infected by *B. parapertussis* and experience illness; however, parapertussis occurs most frequently among children aged <10 years.

Are the incubation and transmission periods for parapertussis the same as pertussis?

Limited data suggest that both illnesses have similar incubation and transmission periods.

How is parapertussis confirmed?

The Wisconsin State Laboratory of Hygiene (WSLH) can confirm *B. parapertussis* infection using PCR and culture. Because there is no clinical case definition for parapertussis, cases are identified based on a positive PCR or culture result. All test requests sent to the WSLH for *B. pertussis* include testing for *B. parapertussis*. Some hospital and regional laboratories provide testing for *Bordetella* using PCR assays. Few commercial laboratories perform *Bordetella* culture.

Can a person be infected with pertussis and parapertussis at the same time?

Yes. However, the signs and symptoms of illness would be more severe because of the *B. pertussis* infection.

Does DTaP vaccine prevent parapertussis?

No. There is no cross-immunity between *B. pertussis* and *B. parapertussis* infection.

Is parapertussis a reportable disease?

Parapertussis is not listed as an official reportable disease. However, because of the increased incidence of parapertussis observed in Wisconsin during 2011, the Wisconsin Division of Public Health (DPH) has requested laboratories to report and local health departments to investigate cases of *B. parapertussis* infection. The information that is collected during this investigation will help inform DPH guidelines for the management and control of *B. parapertussis* infections.

What is the case management for parapertussis?

There are no national guidelines for the treatment or public health management of parapertussis. However, DPH recommends treatment of persons with confirmed cases of parapertussis, particularly infants. If parapertussis is similar to pertussis regarding signs and symptoms of illness and response to appropriate antibiotic treatment, treatment for parapertussis infection would need to be very timely to impact the course of illness.

When a case of parapertussis occurs in a household, prophylactic treatment of household members should be strongly considered if there is an infant aged <6 months in the household. All infants aged <6 months should receive antibiotic prophylaxis if they have been in contact with a person who has parapertussis.

Limited data suggest *B. parapertussis* is susceptible to both macrolides and trimethoprim-sulfamethoxazole (TMP-SMX). The dosing and dose schedule for *B.*

parapertussis infection is the same as for *B. pertussis* infection. Information regarding the dosing schedule for treating *B. pertussis* infection can be found on the Immunization Program website at: <http://www.dhs.wisconsin.gov/immunization/pertussis.htm>

Patients with laboratory-confirmed symptomatic *B. parapertussis* infections do not need to be isolated or furloughed from school or work. However, persons with *B. parapertussis* infection should avoid contact with infants aged <6 months until they have received five days of appropriate antibiotic treatment. Prophylaxis for asymptomatic contacts (except in the case of household members when there is an infant aged <6 months in the same household) is not recommended.